
Lahka motorna vozila za prevoz ljudi in blaga ter s tem povezanih naprav in za katere ni potrebna homologacija za uporabo na cesti - Lahka osebna električna vozila (PLEV) - Varnostne zahteve in preskusne metode

Light motorized vehicles for the transportation of persons and goods and related facilities and not subject to type-approval for on-road use - Personal light electric vehicles (PLEV) - Safety requirements and test methods

Motorisierte (ride-on) Fahrzeuge ohne Zulassung für den öffentlichen Straßenverkehr, bestimmt für den Transport von Personen und Gütern - Side-by-Side-Fahrzeuge - Sicherheitstechnische Anforderungen und Prüfverfahren

Véhicules motorisés légers non soumis à la réception par type pour le transport de personnes, de marchandises ainsi que d'autres équipements - Véhicules tout terrain (VTT - Quads) et véhicules côte à côte - Exigences de sécurité et méthodes d'essai

Ta slovenski standard je istoveten z: EN 17128:2020

ICS:

43.120 Električna cestna vozila Electric road vehicles

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EUROPEAN STANDARD
NORME EUROPÉENNE
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FprEN 17128

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ICS 43.120

English Version

Light motorized vehicles for the transportation of persons and goods and related facilities and not subject to type-approval for on-road use - Personal light electric vehicles (PLEV) - Safety requirements and test methods

Véhicules légers motorisés pour le transport de personnes et de marchandises, non homologables pour l'utilisation sur la route, ainsi que les installations d'utilisation - Véhicules électriques personnels légers (PLEV) - Exigences de sécurité et méthodes d'essai

Nicht-Typ zugelassene leicht motorisierte Fahrzeuge für den Transport von Personen und Gütern und damit verbundene Einrichtungen - Persönliche leichte Elektrofahrzeuge (PLEV) - Sicherheitstechnische Anforderungen und Prüfverfahren

This draft European Standard is submitted to CEN members for second formal vote. It has been drawn up by the Technical Committee CEN/TC 354.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (FprEN 17128:2020) has been prepared by Technical Committee CEN/TC 354 “Light motorized vehicles for the transportation of persons and goods and related facilities and not subject to type-approval for on-road use”, the secretariat of which is held by AFNOR.

This document is currently submitted to the 2nd formal vote.

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FprEN 17128:2020 (E)**Introduction**

This document has been developed in response to an increased demand throughout Europe for light electrically powered vehicles of a type which are excluded from the scope of Regulation (EU) No 168/2013.

This has created the possibility to initiate a European standardization work for personal light electric vehicles. Such standardization will help manufacturers to ensure that safe products are put into the European market, will give to testing institutes common guidelines to assess the products, will initiate confidence to users and also be useful to convince member states to apply harmonized rules for the use of these vehicles with the aim decrease uncertainty due to different national regulation.

This document will not deal with topics like comfort of the user, quality of the product or ergonomic issues unless there is an impact on the safety of the user.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance etc.)

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

1 Scope

This document applies to personal light electric vehicles totally or partially electrically powered from self-contained power sources with or without self-balancing system, with exception of vehicles intended for hire from unattended station.

This document applies to personal light electric vehicles with or without self-balancing system totally or partially electrically powered from self-contained power sources having battery voltages up to 100 VDC, with or without an integrated battery charger with up to a 240 VAC input. This document specifies safety requirements, test methods, marking and information relating to personal light electric vehicles to reduce the risk of injuries to both third parties and the user during intended use, i.e. when used as intended and under conditions of misuse that are reasonably foreseeable by the manufacturer.

This document does not apply to:

- vehicles that are considered as toys;
- vehicles without self-balancing system with a seat;
- vehicles intended for competition;
- electrically powered assisted cycles (EPAC);
- vehicles and/or devices intend for use for medical care;
- electric vehicles having a maximum design speed above 25 Km/h;
- vehicles having a rated voltage of more than 100 VDC or 240 VAC;
- vehicles without an on-board driving operator.

NOTE 1 EN ISO 13482 gives the requirements for vehicles without on-board driving operator.

NOTE 2 See D.2.

NOTE 3 The local regulation could limit the use of the vehicle to a speed lower than 25 km/h.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 3744:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2010)*

EN 22248:1992, *Packaging - Complete, filled transport packages - Vertical impact test by dropping (ISO 2248:1985)*

FprEN IEC 55012:2018, *Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of off-board receivers (CISPR 12)*

EN 55025:2017, *Vehicles, boats and internal combustion engines — Radio disturbance characteristics — Limits and methods of measurement for the protection of on-board receivers (CISPR 25)*

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EN 60068-2-64:2008, *Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance (IEC 60068-2-64)*

EN 60068-2-75:2014, *Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests (IEC 60068-2-75)*

EN 60335-1:2012, *Household and similar electrical appliances - Safety - Part 1: General requirements (IEC 60335-1:2010)*

EN 60335-2-29:2004, *Household and similar electrical appliances - Safety - Part 2-29: Particular requirements for battery chargers (IEC 60335-2-29)*

HD 60364-5-52:2011, *Low-voltage electrical installations - Part 5-52: Selection and erection of electrical equipment - Wiring systems*

EN 60384-14:2013, *Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

EN 61000-4-2:2009, *Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test (IEC 61000-4-2)*

EN IEC 61000-6-1:2019, *Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1)*

EN 61000-6-3:2007, *Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3)*

EN 61140:2016, *Protection against electric shock - Common aspects for installation and equipment*

EN 61558-1:2005, *Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests*

EN 61558-2-16:2009, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V - Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units*

EN 61851:2001 (all parts), *Electric vehicle conductive charging system (IEC 61851)*

EN 60204-1:2018, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1)*

EN 62133 (all parts), *Secondary cells and batteries containing alkaline or other non-acid electrolytes — Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications (IEC 62133)*

ISO 6742-1:2015, *Cycles — Lighting and retro-reflective devices — Part 1: Lighting and light signalling devices*

ISO 6742-2:2015, *Cycles — Lighting and retro-reflective devices — Part 2: Retro-reflective devices*

ISO 14878:2015, *Cycles — Audible warning devices — Technical specification and test methods*

EN IEC 62485 (all parts), *Safety requirements for secondary batteries and battery installations (IEC 62485)*

ISO 11451-1, *Road vehicles — Vehicle test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 1: General principles and terminology*

ISO 11452-1:2015, *Road vehicles — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 1: General principles and terminology*

ISO 11452-2:2019, *Road vehicles — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 2: Absorber-lined shielded enclosure*

ISO 11452-3:2016, *Road vehicles — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 3: Transverse electromagnetic (TEM) cell*

ISO 11452-4:2020, *Road vehicles — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 4: Harness excitation methods*

ISO 11452-5:2002, *Road vehicles — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 5: Stripline*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

public space

place that is accessible to the public whether it is in the public domain or privately owned

Note 1 to entry: Examples are roads, cycle tracks, sidewalks, public squares, parks, stations, airports...

3.2

private space

place that is not accessible to the public

Note 1 to entry: Enclosed or fenced area.

3.3

driving power

electric power enabling the vehicle to move

3.4

personal light electric vehicle

PLEV

wheeled vehicle partially or totally motorized used for the transportation of one person in a public and/or private space

Note 1 to entry: For the purpose of this standard the word “vehicle(s)” is used.

FprEN 17128:2020 (E)**3.5****self-balancing vehicle**

inherently instable vehicle that dynamically stabilizes in at least one direction (pitch) itself using a control system

Note 1 to entry: PLEV can be stable without the action of the user or a control system can provide a self-balancing function.

Note 2 to entry: Self-balancing PLEV oscillates slightly in order to maintain its balance.

Note 3 to entry: User controls its direction and speed by shifting his centre of gravity, without using any traditional device such as handle, steering, brake pedal, etc.

Note 4 to entry: Self-balancing vehicle controlled using inverted pendulum model is already in the market.

3.6**intended use**

supposed use according to the manufacturer's specification, instructions and other information including communication

3.7**fully-assembled vehicle**

vehicle fitted with all of the equipment required for its intended use

3.8**direct braking system**

system actuated directly by the user (for example, a brake handle or a brake pedal)

3.9**indirect braking system**

system actuated without voluntary action by the user (for example, braking activated by a gyroscopic system or through the detection of obstacles/anomalies)

3.10**parking device**

device to maintain the vehicle in a stationary position

3.11**braking device**

device to reduce the speed of the vehicle

3.12**locking mechanism**

assembly of components consisting of one or more *locking device(s)* and *one or more operating device(s)*

3.13**locking device**

mechanical component that maintains part(s) of the vehicle erected in the position of use or storage (e.g. latch(es), hooks, over centre lock...) which could be deactivated or activated by action(s) on the *operating device*

3.14**operating device**

part of the *locking mechanism(s)* designed to be activated by the user through one or several positive action(s)

3.15**folding or unfolding system**

mechanism enabling the vehicle to be folded or unfolded in order to change from the configuration of use (unfolded) to the configuration of storage (folded) and vice versa

3.16**no-load current**

current for which there is no torque on the driving wheel

3.17**electromagnetic compatibility**

ability of a vehicle or one of its electrical/electronic systems to function satisfactorily in its electromagnetic environment without producing intolerable electromagnetic disturbance to anything in that environment

3.18**electromagnetic disturbance**

electromagnetic phenomenon which may degrade the performance of a vehicle or one of its electronic/electrical systems

EXAMPLE An electromagnetic disturbance is for example an electromagnetic noise, an unwanted signal or a change in the propagation medium itself.

[SOURCE: EN 15194:2017, 3.10]

3.19**electromagnetic environment**

all electromagnetic phenomena existing in a given point

3.20**reference limit**

nominal level to which both the component type-approval of the vehicle and conformity of production limit value refer

3.21**electrical/electronic subassembly****ESA**

electrical and/or electronic device or assembly of such units intended, together with all electrical connections and the associated wiring, to form an integral part of a vehicle and perform several specialized functions

3.22**rated voltage**

voltage declared by the manufacturer of the vehicle